



# LUCAS PEREIRA

## RESEARCH FELLOW

ITI, LARSyS, Instituto Superior Técnico

## CO-FOUNDER AND DATA SCIENCE LEAD

BrightCuriosity Lda (prisma.com)

## CITIZENSHIP

Portugal

## OFFICE

Polo Científico e Tecnológico da Madeira,  
floor -2, office 3  
Caminho da Penteadá  
9050-105 Funchal  
Portugal

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## WEB

<https://alspereira.info>

## CIENCIA ID

421F-7B0E-8647

## ORCID

<http://orcid.org/0000-0002-9110-8775>

## GOOGLE SCHOLAR

<https://goo.gl/M7Guxq>

## EDUCATION

### PHD IN COMPUTER SCIENCE - 2016

University of Madeira / M-ITI, Portugal

### MSC IN COMPUTER SCIENCE - 2011

University of Madeira / M-ITI, Portugal

### ENGINEERING DEGREE IN INFORMATICS - 2007

University of Madeira, Portugal

## PROFESSIONAL EXPERIENCE

### ASSISTANT RESEARCHER, APRIL 2019 - ONGOING

ITI, LARSyS, Instituto Superior Técnico, University of Lisbon

### VISITING ASSISTANT PROFESSOR, OCTOBER 2017 - JULY 2019

University of Madeira

### POST-DOCTORAL RESEARCHER, JANUARY 2017 - MARCH 2019

Madeira Interactive Technologies Institute (M-ITI)

### CO-FOUNDER AND DATA SCIENCE LEAD, JUNE 2015 - ONGOING

BrightCuriosity Lda. (prisma)

### INFORMATICS ENGINEER, DECEMBER 2007 - JANUARY 2010

Information Systems and Communications Department  
Câmara de Lobos City Hall

## LANGUAGES

PORTUGUESE (C2), ENGLISH (C2), SPANISH (B2), FRENCH (A1)

## HONOURS AND AWARDS

### WORLD TOP 2% MOST CITED RESEARCHER 2022

World's Top 2% Scientists List by Stanford University

### WIRES DATA MINING AND KNOWLEDGE DISCOVERY TOP CITED ARTICLES 2020

<https://wires.onlinelibrary.wiley.com/doi/10.1002/widm.1265>

### SCIENTIFIC EMPLOYMENT STIMULUS GRANT, 2019 (TOP 12%)

Portuguese Foundation for Science and Technology

### BEST ORAL PRESENTATION, 2018

International NILM Workshop 2018

### INDIVIDUAL DOCTORAL GRANT, 2011 - 2015

Portuguese Foundation for Science and Technology

## RESEARCH GRANTS

### SHIFT TO DIRECT CURRENT (SHIFT2DC), 2023 - 2027

Horizon Europe, GA 101136131

### ACCURATE FEDERATED LEARNING WITH UNCERTAINTY QUANTIFICATION FOR DER FORECASTING APPLIED TO SMART GRIDS PLANNING AND OPERATION (ALAMO), 2024

FCT, 2022.15771.MIT

<https://alamo.tecnico.ulisboa.pt>

### EXPLORING THE HUMAN-WATER-ENERGY NEXUS IN INDUSTRIAL KITCHENS (NEXIK), 2022 - 2023

FCT, EXPLICCI-COM/1234/2021

<https://nexik.tecnico.ulisboa.pt>

### FUTURE INDUSTRIAL KITCHEN (FIK), 2018 - 2019

Madeira 14-20 / FEDER, MI420-01-0247-FEDER-000018

<https://futurekitchen.m-iti.org>

**SMART ISLAND ENERGY SYSTEMS (SMILE), 2017 - 2021**

Horizon 2020, GA 731249

<https://www.h2020smile.eu>

**SME INSTRUMENT - PHASE 1, 2015 - 2016**

Horizon 2020, SME Instrument

## TEACHING

**COMMUNICATION AND MULTIMEDIA - UNIVERSITY OF MADEIRA, SPRING 2019**

Introduction to multimedia tools, content creation and management. Web accessibility and data privacy protection. Course delivered in Portuguese.

**PROGRAMMING PARADIGMS - UNIVERSITY OF MADEIRA, FALL 2017**

Introductory programming course to the different engineering and mathematics majors at the the University of Madeira. Course delivered in English and Portuguese.

## PHD STUDENTS

**NUNO VELOSA (TÉCNICO LISBOA, UNIVERSITY OF LISBON), 2023 - ONGOING**

Thesis: SHINING - Modeling of SHared electric mobility IN smart cities using multi-agent reinforcement learnING. In co-supervision with Hugo Morais (Técnico Lisboa)

**MANUEL PEREIRA (TÉCNICO LISBOA, UNIVERSITY OF LISBON), 2023 - ONGOING**

Thesis: ORCHESTRA - Optimized Routing and CHarging of Electric vehicles using Satellite and TRAffic Information. In co-supervision with Hugo Morais (Técnico Lisboa)

**LUNODZO MWINUKA (TÉCNICO LISBOA, UNIVERSITY OF LISBON), 2023 - ONGOING**

Thesis: Large Scale Data Management and Integration in Energy Systems. In co-supervision with Massimo Cafaro (University of Salento) and Hugo Morais (Técnico Lisboa) (Funded by Horizon 2020 - InnoCyPES MSCA ITN)

**JOÃO GÓIS (TÉCNICO LISBOA, UNIVERSITY OF LISBON), 2021 - ONGOING**

Thesis: On the Relationship Between Similarity Measures and Complexity in Energy Disaggregation (Funded by FCT)

**ANTHONY FAUSTINE (TÉCNICO LISBOA, UNIVERSITY OF LISBON), 2021 - ONGOING**

Thesis: Towards Robust Machine Learning Algorithms for Future Energy Systems

**EDUARDO GOMES (TÉCNICO LISBOA, UNIVERSITY OF LISBON), 2021 - ONGOING**

Thesis: MARLEC: Multi-Agent Reinforcement Learning Applications in Energy Communities. In co-supervision with Hugo Morais and Augusto Esteves (Técnico Lisboa) (Funded by FCT)

## ONGOING MASTER STUDENTS

**DIOGO MONTEIRO (DATA SCIENCE AND ENGINEERING, TÉCNICO LISBOA, U. LISBON), 2024**

Thesis: Federated Learning Forecasting Algorithms Applied to Distributed Energy Resources. In co-supervision with Hugo Morais (Técnico Lisboa, U. Lisbon)

**TIMON SIEME (ENERGY ENGINEERING AND MANAGEMENT, TÉCNICO LISBOA, U. LISBON), 2023/2024**

Thesis: Scenarios generation tool for Social Energy Communities. In co-supervision with Hugo Morais (Técnico Lisboa, U. Lisbon)

**RAFAEL CANDEIAS (COMPUTER SCIENCE AND ENGINEERING, TÉCNICO LISBOA, U. LISBON), 2022/2023**

Thesis: Semi-Supervised Learning Applied to Soil Nutrient Estimation Using Earth Observation Data.

## GRADUATED MASTER STUDENTS

**ANA OLIVEIRA (ELECTRICAL AND COMPUTER ENGINEERING, TÉCNICO LISBOA, U. LISBON), 2022/2023**

Thesis: Water-Energy-Food Nexus in Industrial Kitchens: Energy Efficiency and Management. In co-supervision with Hugo Morais (Técnico Lisboa, U. Lisbon)

**FÁBIO BASSOI (COMPUTER SCIENCE AND ENGINEERING, TÉCNICO LISBOA, U. LISBON), 2022/2023**

Thesis: Data-Driven Approach to Predict the Consumption of Electrical Energy in Residencies Using Multiple Scopes of Non-Electric Data

**MÁRCIO ROMERO (ELECTRICAL AND COMPUTER ENGINEERING, TÉCNICO LISBOA, U. LISBON), 2022/2023**

Thesis: Water-Energy-Food Nexus in Industrial Kitchens - Load Modelling of Industrial Kitchen Devices. In co-supervision with Hugo Morais (Técnico Lisboa, U. Lisbon)

**VASCO ANDRADE (ELECTRICAL AND COMPUTER ENGINEERING, TÉCNICO LISBOA, U. LISBON), 2022/2023**

*Thesis: Forecast of Electrical Consumption in Industrial Kitchens.* In co-supervision with Hugo Morais (Técnico Lisboa, U. Lisbon)

**RICARDO MARTINS (DATA SCIENCE AND ENGINEERING, TÉCNICO LISBOA, U. LISBON), 2022**

*Thesis: Machine Learning Applications in Industrial Kitchens: Data Acquisition and Data-Driven Water-Energy-Food Nexus Modelling.* In co-supervision with Hugo Morais (Técnico Lisboa, U. Lisbon)

**NUNO VELOSA (INFORMATICS ENGINEERING, UNIVERSITY OF MADEIRA), 2020/2021 - 2021/2022**

*Thesis: Exploring the potential of social agents and distributed ledger technologies for load balancing in community energy systems.* In co-supervision with Filipe Quintal (University of Madeira) | Now at INESC-ID

**MANUEL PEREIRA (INFORMATICS ENGINEERING, UNIVERSITY OF MADEIRA), 2020/2021 - 2021/2022**

*Thesis: Exploring the potential of machine-learning and earth observations data for climate change mitigation.* In co-supervision with Filipe Quintal (University of Madeira) | Now at INESC-ID

**DIOGO NOBREGA (ELECTRICAL AND COMPUTER ENGINEERING, TÉCNICO LISBOA, U. LISBON), 2021/2022**

*Thesis: Battery Energy Storage System to Provide Grid Services.* In co-supervision with Hugo Morais (Técnico Lisboa, U. Lisbon)

**JORGE AMANTEGUI (ENERGY ENGINEERING AND MANAGEMENT, TÉCNICO LISBOA, U. LISBON), 2021/2022**

*Thesis: On the Potential of RES and Storage Devices in the Context of Restaurant Kitchens.* In co-supervision with Hugo Morais (Técnico Lisboa, U. Lisbon)

**ARUN NAGARAJ (ENERGY ENGINEERING AND MANAGEMENT, TÉCNICO LISBOA, U. LISBON), 2020/2021**

*Thesis: Participation of prosumers in peer-to-peer negotiation in Energy Communities.* In co-supervision with Hugo Morais (Técnico Lisboa, U. Lisbon) | Now at Microsoft Portugal

**MIKOLAJ KRUTNIK (ENERGY ENGINEERING AND MANAGEMENT, TÉCNICO LISBOA, U. LISBON), 2019/2020**

*Thesis: Energy Services for the Food Industry.* In co-supervision with Nuno Nunes (University of Lisbon) and Van Malcolm Yadack (Koena Tech) | Now at McKinsey & Company

**DINO VASCONCELOS (ELECTRICAL ENGINEERING, UNIVERSITY OF MADEIRA), 2017/2018 - 2019/2020**

*Thesis: Electric Vehicle Smart Charging.* In co-supervision with Dionisio Barros (University of Madeira) | Now at Tech4Home

**FAYAZ AHMED (ENERGY ENGINEERING AND MANAGEMENT, TÉCNICO LISBOA, U. LISBON), 2018/2019**

*Thesis: Assessing the Value Proposition of Disaggregated Electricity Consumption Data through Real-World Deployments.* In co-supervision with Nuno Jardim Nunes (University of Lisbon) | now at CleanWatts

**RODOLFO GONÇALVES (INFORMATICS ENGINEERING, UNIVERSITY OF MADEIRA), 2013/2014 - 2014/2015**

*Thesis: OpenDataHub: An Open Dataset Management System.* In co-supervision with Nuno Nunes and Filipe Quintal (University of Madeira) | now at blip.pt

## PHD THESES EXAMINER

**FRANCESCA MARCELLO (ELECTRONIC AND COMPUTER ENGINEERING, UNIVERSITY OF CAGLIARI, ITALY) - 2023**

*Thesis: Sensors and Wearable-based Activity Recognition and Behaviour Analysis for Users' Quality of Life Improvement*

**FÁBIO MENDONÇA (ELECTRICAL AND COMPUTER ENGINEERING, TÉCNICO LISBOA, U. LISBON) - 2021**

*Thesis: Signal Processing Approaches for Sleep Quality Analysis in Suspected Sleep Disorder Patients*

**SANDY ABREU (ELECTRICAL AND COMPUTER ENGINEERING, TÉCNICO LISBOA, U. LISBON) - 2021**

*Thesis: Improving Machine Learning Prediction and Forecasting Models Used in Photovoltaic Monitoring Systems*

## MSC THESES EXAMINER

**RAFAEL SARDINHA (ENERGY ENGINEERING AND MANAGEMENT, TÉCNICO LISBOA, U. LISBON), 2023**

*Thesis: Microgrids – Impact on the development of rural communities in Sub-Saharan Africa*

**LUCAS NOLASCO (ELECTRICAL AND INDUSTRIAL INFORMATICS ENGINEERING, UTFPR, BRAZIL), 2023**  
Thesis: DEEPDFML-NILM: A Deep Learning-Based Model for Detection, Feature Extraction and Classification in NILM Signals

**JOSÉ SARAMAGO (ELECTRICAL AND COMPUTER ENGINEERING, TÉCNICO LISBOA, U. LISBON), 2023**  
Thesis: Energy Communities : Military Academy Use Case

**FRANCISCO FIALHO (COMPUTER SCIENCE AND ENGINEERING, TÉCNICO LISBOA, U. LISBON), 2022**  
Thesis: PowerShare - AI Energy Sensor Interface for Google Home/Assistant

**GUILHERMO LOPEZ (ELECTRICAL AND COMPUTER ENGINEERING, TÉCNICO LISBOA, U. LISBON), 2022**  
Thesis: Management of Autonomous Electric Vehicles in Parking Lots

**DUARTE SILVA (ELECTRICAL AND COMPUTER ENGINEERING, TÉCNICO LISBOA, U. LISBON), 2021**  
Thesis: Sistema Hierárquico de Gestão de Energia em Parques de Estacionamento (Hierarchical Energy Management System in Car Parks)

**DUARTE PINTO (COMPUTER SCIENCE AND ENGINEERING, ISCTE, IUL), 2021**  
Thesis: User Emotional Interaction Processor: A tool to support the development of GUIs through physiological user monitoring

**JOAQUIM PEREZ (INFORMATICS ENGINEERING, UNIVERSITY OF MADEIRA), 2021**  
Thesis: Development and Analysis of an Open-source Platform to Simulate Electric Vehicle Charging Needs

**ANDRÉ MOURA (INFORMATICS ENGINEERING, UNIVERSITY OF MADEIRA), 2021**  
Thesis: User Chat Clustering Using Deep Learning Representations and Unsupervised Methods for Dialog System Applications

**ANDRESSA BADE (ENERGY ENGINEERING AND MANAGEMENT, TÉCNICO LISBOA, U. LISBON), 2020**  
Thesis: Small Flexibility-based Frequency Containment Reserves - Opportunities in the European Union and Case Study

**DIOGO CRUZ (INFORMATICS ENGINEERING, UNIVERSITY OF MADEIRA), 2020**  
Thesis: User Interfaces and Methods for Visual Search in Images

## GRADUATED BACHELOR STUDENTS

**TONI GARCÊS (INFORMATICS ENGINEERING, UNIVERSITY OF MADEIRA), 2023**  
Project: Visualising Electricity Consumption in Industrial Kitchens.

**TOM MENDONÇA (INFORMATICS ENGINEERING, UNIVERSITY OF MADEIRA), 2023**  
Project: Frontend application for the TerraSenseTK Machine-Learning Toolkit.

**FILIFE LOPES (INFORMATICS ENGINEERING, UNIVERSITY OF MADEIRA), 2023**  
Project: Frontend application for the PROCOSIM Energy Communities Simulator.

**PEDRO JAQUES (INFORMATICS ENGINEERING, UNIVERSITY OF MADEIRA), 2023**  
Project: Empirical exploration of performance metrics for power and energy estimation using NILM.

**JOÃO PEREIRA (INFORMATICS ENGINEERING, UNIVERSITY OF MADEIRA), 2020**  
Project: Perceptions of sustainable development web-platform.

**MANUEL PEREIRA (INFORMATICS ENGINEERING, UNIVERSITY OF MADEIRA), 2019**  
Project: dsCleaner: A Python Library to Clean, Preprocess and Convert Non-Intrusive Load Monitoring Datasets.

**NUNO VELOSA (INFORMATICS ENGINEERING, UNIVERSITY OF MADEIRA), 2019**  
Project: Multimedia File Format for Data Analytics in Smart Energy Grids.

**MICHAEL CAVALEIRO (INFORMATICS ENGINEERING, UNIVERSITY OF MADEIRA), 2019**  
Project: Map My Drive web-platform

## VISITING STUDENTS

**MANOLO MANCA (UNIVERSITY OF CAGLIARI, ITALY), 2022**  
Research Topic: End-to-end energy disaggregation with combined single- and multi-label approaches

## REVIEWING

### **REVIEWER IN JOURNALS**

*ACM Transactions on Intelligent Interactive Systems*  
*Elsevier Advanced Engineering Informatics*  
*Elsevier Applied Energy*  
*Elsevier Building Engineering*  
*Elsevier Electric Power Systems Research*  
*Elsevier Energy and AI*  
*Elsevier Energy and Buildings*  
*Elsevier International Journal of Electrical Power and Energy Systems*  
*Elsevier Sustainable Cities and Society*  
*Elsevier Sustainable Energy, Grids and Networks*  
*Elsevier Utilities Policy*  
*IEEE Access*  
*IEEE Journal of Modern Power Systems and Clean Energy*  
*IEEE Transactions on Consumer Electronics*  
*IEEE Transactions on Green Communications and Networking*  
*IEEE Transactions on Industrial Informatics*  
*IEEE Transactions on Instrumentation & Measurement*  
*IEEE Transactions on Smart Grid*  
*MDPI Buildings*  
*MDPI Energies*  
*MDPI Future Internet*  
*MDPI Sensors*  
*MDPI Smart Cities*  
*MDPI Sustainability*  
*MDPI Technologies*  
*MDPI Urban Science*  
*Nature Scientific Data*  
*Nature Scientific Reports*  
*Wiley International Journal of Energy Research*

### **REVIEWER IN CONFERENCES**

*ACM Conference on Computer-Supported Cooperative Work and Social Computing*  
*ACM Nordic Conference on Human-Computer Interaction*  
*ACM Conference on Intelligent User Interfaces*  
*ACM International Conference on Embedded Systems for Energy-Efficient Buildings*  
*ACM CHI Conference on Human Factors in Computing Systems*  
*ACM SIGCHI Conference on Mobile Human-Computer Interaction*  
*ACM SIGCHI Symposium on Engineering Interactive Computing Systems*  
*ACM SIGCHI Symposium on User Interface Software and Technology*  
*ACM International Conference on Information Technology for Social Good*  
*ACM Conference on Designing Interactive Systems*  
*International ACM Conference on Automotive User Interfaces and Interactive Vehicular Applications*  
*Annual Conference of the IEEE Industrial Electronics Society*  
*European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases*  
*IEEE International Conference on Acoustics, Speech, and Signal Processing*  
*IEEE International Conference on Artificial Intelligence & eXtended and Virtual Reality*  
*IEEE International Conference on Smart Computing*  
*IEEE PES Power Africa Conference - PowerAfrica*  
*IEEE Mediterranean Electrotechnical Conference*  
*IEEE International Conference on Omni-Layer Intelligent Systems*  
*IEEE International Conference on Communications*  
*IFIP Conference on Sustainable Internet and ICT for Sustainability*  
*International Conference on Smart Energy Technologies*  
*International Conference on Mobile and Ubiquitous Multimedia*  
*International Conference on ICT for Sustainability*

#### REVIEWER IN WORKSHOPS

Tackling Climate Change with Machine Learning  
International Workshop on Non-Intrusive Load Monitoring  
ACM Workshop On Embedded Systems For Energy-Efficient Buildings

#### EDITING

##### EDITOR IN CONFERENCE PROCEEDINGS

6th International Workshop on Non-Intrusive Load Monitoring - 2022  
The Fifth IFIP Conference on Sustainable Internet and ICT for Sustainability - 2017

##### EDITOR IN JOURNALS

Guest Editor: MDPI Sensors - Special Issue on Practical Nonintrusive Load Monitoring Approaches with Meaningful Performance Evaluation  
Guest Editor: MDPI Energies - Special Issue on Energy Data Analytics for Smart Meter Data  
Guest Editor: Wiley Greenhouse Gases: Science and Technology - Special Issue on ICEA-Energy and Sustainability 2019  
Guest Editor: Springer Computing - Special Issue on Highlights of ES2DE and IWOB1 2017 - Extended Versions of Selected Best Papers

#### CONFERENCE ORGANIZATION

##### CO-GENERAL CHAIR:

Advances in Signal Processing and Machine Learning for Non-Intrusive Load Monitoring - IEEE ICASSP 2023  
The 6th International Workshop on Non-Intrusive Load Monitoring - NILM 2022

##### VICE-PROGRAM CHAIR:

The Fifth IFIP Conference on Sustainable Internet and ICT for Sustainability - SustainIT 2017

##### CO-CHAIR WORK IN PROGRESS:

International Conference on Information Technology for Social Good - GoodIT 2023

##### LOCAL ORGANIZING COMMITTEE:

Advances in Computer Entertainment Technology - ACE 2014  
IEEE Energy and Sustainability in Small Developing Economies - ES2DE 2017, 2018

##### TECHNICAL PROGRAM COMMITTEE:

ACM International Conference on Information Technology for Social Good - GoodIT since 2021  
ACM Conference on Designing Interactive Systems - DIS 2020  
IEEE International Conference on Artificial Intelligence and Virtual Reality - AIVR 2018 - 2021  
ACM Conference on Intelligent User Interfaces - IUI 2017 - 2023  
IEEE International Conference on Smart Computing - SmartComp 2018 - 2020  
International Workshop on Non-Intrusive Load Monitoring - NILM Workshop 2016, 2020, 2022  
International Conference on Smart Cities and Green ICT Systems - SMARTGREENS 2024

##### TECHNICAL SESSION CHAIR:

IEEE International Conference on Industrial Informatics - INDIN 2023  
International Workshop on Non-Intrusive Load Monitoring - NILM Workshop 2018, 2022  
IEEE Energy and Sustainability in Small Developing Economies - ES2DE 2017

#### PUBLICATIONS

##### JOURNALS

1. Andrade, V., Morais, H., **Pereira, L., (2024)** "Industrial kitchen appliance consumption forecasting: Hour-ahead and day-ahead perspectives with post-processing improvements," *Computers and Electrical Engineering*, Elsevier, doi: <https://doi.org/10.1016/j.compeleceng.2024.109145>
2. Gomes, E., **Pereira, L.,** Esteves, A., Morais, H. **(2023)** "PyECOM: A Python tool for analysing and simulating Energy Communities," *SoftwareX*, Elsevier, doi: <https://doi.org/10.1016/j.softx.2023.101580>
3. **Pereira, L.,** Aguiar, V., Vasconcelos, F., Martins, R., Garcês, T., Morais, H. **(2023)** "FIKElectricity: A Electricity Consumption Dataset from Three Restaurant Kitchens in Portugal," *Scientific Data*, Nature, doi: <https://doi.org/10.1038/s41597-023-02698-8>

4. Krutnik, M., Pedro, A., Yadack, V. M., Morais, H., **Pereira, L. (2023)** "On the Potential of Tertiary Espresso Machines to Provide Frequency Containment Reserves Services," *Transactions on Consumer Electronics, IEEE*, doi: <https://doi.org/10.1109/TCE.2023.3323823>
5. Góis, J., **Pereira, L. (2023)** "ANR: A New Metric to Quantify the Appliance to Noise Ratio in Load Disaggregation Datasets," *Transactions on Instrumentation and Measurement, IEEE*, doi: <https://doi.org/10.1109/TIM.2023.3311066>
6. Perez, J., Quintal, F., **Pereira, L. (2023)** "Distributed Platform for Offline and Online EV Charging Simulation," *Electronics, MDPI*, doi: <https://doi.org/10.3390/electronics12214401>
7. Velosa, N., Gomes, E., Morais, M., **Pereira, L. (2023)** "PROCSIM: An Open-Source Simulator to Generate Energy Community Power Demand and Generation Scenarios," *Energies, MDPI*, doi: 10.3390/en16041611
8. Pedro, A., Krutnik, M., Yadack, V. M., **Pereira, L.**, Morais, H. (2022) "Opportunities and Challenges for Small-Scale Flexibility in European Electricity Markets," *Utilities Policy, Elsevier*, doi: 10.1016/j.jup.2022.101477
9. Amantegui, J., Morais, H., **Pereira, L. (2022)** "Benchmark of Electricity Consumption Forecasting Methodologies Applied to Industrial Kitchens," *Buildings, MDPI*, doi: 10.3390/buildings12122231
10. Bousbiat, B., Faustine, A., Klemenjak, C., **Pereira, P.**, Elmenreich, W. (2022) "Unlocking the Full Potential of Neural NILM: On Automation, Hyperparameters & Modular Pipelines", *Transactions on Industrial Informatics, IEEE*, doi: 10.1109/TII.2022.3206322
11. Góis, J., **Pereira, L.**, Nunes, N. (2022) "A Data-Centric Analysis of the Impact of Non-Electric Data on the Performance of Load Disaggregation Algorithms", *Sensors, MDPI*, doi: 10.3390/s22186914
12. Fiqueli, Z., **Pereira, L. (2022)** "Privacy Protection in Smart Meters using Homomorphic Encryption: an overview", *WIREs Data Mining and Knowledge Discovery, Wiley*, doi: 10.1002/widm.1469
13. **Pereira, L.**, Velosa, N., Pereira, M. (2022) "A Data Model and File Format to Represent and Store High Frequency Energy Monitoring and Disaggregation Datasets", *Scientific Reports, Nature*, doi: 10.1038/s41598-022-14517-y
14. Gomes, L., Morais, H., Rodrigues, C., Gomes, E., **Pereira, L.**, Vale, Z. (2022) "Impact of Forecasting Models Errors in a Peer-to-Peer Energy Sharing Market", *Energies, MDPI*, doi: 10.3390/en15103543
15. **Pereira, L.**, Costa, D., Ribeiro, M. (2022) "A residential labeled dataset for smart meter data analytics", *Scientific Data, Nature*, doi: 10.1038/s41597-022-01252-2
16. Faustine, A., **Pereira, L. (2022)** "FPSeq2Q: Fully Parameterized Sequence to Quantile Regression for Net-Load Forecasting with Uncertainty Estimates", *Transactions on Smart Grid, IEEE*, doi: 10.1109/TSG.2022.3148699
17. Góis, J., **Pereira, L. (2021)** "A Novel Methodology for Identifying Appliance Usage Patterns in Buildings Based on Auto-Correlation and Probability Distribution Analysis", *Energy and Buildings, Elsevier*, doi: 10.1016/j.enbuild.2021.111618
18. Quintal, F., Garigali, D., Vasconcelos, D., Cavaleiro, J., Santos, W., **Pereira, L. (2021)** "Energy Monitoring in the Wild: Platform Development and Lessons Learned from a Real-World Demonstrator", *Energies, MDPI*, doi: 10.3390/en14185786
19. **Pereira, L.**, Aguiar, V., Vasconcelos, F. (2021) "FIKWater: A Water Consumption Dataset from Three Restaurant Kitchens in Portugal", *Data, MDPI*, doi: 10.3390/data6030026

20. **Pereira, L.**, Aguiar, V., Vasconcelos, F. (2021) "FIKWaste: A Waste Generation Dataset from Three Restaurant Kitchens in Portugal", *Data, MDPI*, doi: 10.3390/data6030025
21. Völker, B., Reinhardt, A., Fausten, A., **Pereira, L.** (2021) "Watt's up at Home? Smart Meter Data Analytics from a Consumer-Centric Perspective" *Energies, MDPI*, doi: 10.3390/en14030719
22. **Pereira, L.**, Cavaleiro, J., Barros, L. (2020) "Economic Assessment of Solar-Powered Residential Battery Energy Storage Systems: The Case of Madeira Island, Portugal" *Applied Sciences, MDPI*, doi: 10.3390/app10207366
23. **Pereira, L.**, Nunes, N. (2020) "An Empirical Exploration of Performance Metrics for Event Detection Algorithms in Non-Intrusive Load Monitoring", *Sustainable Cities and Society, Elsevier*, doi: 10.1016/j.scs.2020.102399
24. Faustine, A., **Pereira, L.**, Klemenjak, C. (2020) "Adaptive Weighted Recurrence Graphs for Appliance Recognition in Non-Intrusive Load Monitoring", *Transactions on Smart Grid, IEEE*, doi: 10.1109/TSG.2020.3010621
25. Faustine, A., **Pereira, L.** (2020) "Multi-label Learning for Appliance Recognition in NILM using Fryze-Current Decomposition and Convolutional Neural Network", *Energies, MDPI*, doi: 10.3390/en13164154
26. Faustine, A., **Pereira, L.** (2020) "Improved Appliance Classification in Non-Intrusive Load Monitoring Using Weighted Recurrence Graph and Convolutional Neural Networks", *Energies, MDPI*, doi: 10.3390/en13133374
27. Câmara, E., **Pereira, L.** (2020) "PB-NILM: PinBall Guided Deep Non-Intrusive Load Monitoring", *Access, IEEE*, doi: 10.1109/ACCESS.2020.2978513
28. Hashmi, Md U., Deka, D., Bušić, A., **Pereira, L.**, Backhaus, S. (2020) "Arbitrage with power factor correction using energy storage", *Transactions on Power Systems, IEEE*, doi: 10.1109/TPWRS.2020.2969978
29. **Pereira, L.**, Nunes, N. (2019) "Understanding the practical issues of deploying energy monitoring and eco-feedback technology in the wild: Lesson learned from three long-term deployments.", *Energy Reports, Elsevier*, doi: 10.1016/j.egy.2019.11.025
30. **Pereira, L.** (2019) "NILMPEDs: A Performance Evaluation Dataset for Event Detection Algorithms in Non-Intrusive Load Monitoring", *Data, MDPI*, doi: 10.3390/data4030127
31. Pereira, M., Velova, N., **Pereira, L.** (2019) "dsCleaner: A Python Library to Clean, Preprocess and Convert Non-Intrusive Load Monitoring Datasets", *Data, MDPI*, doi: 10.3390/data4030123
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41. Isaza-Giraldo, A., Pereira, M., Candeias, R., **Pereira, L.** (2023) "Satellite Dataset Visual Analysis for Remote Soil Nutrient Estimation" in *Proceedings of the 3<sup>rd</sup> International Conference on Water Energy Food and Sustainability, ICoWEFS'23*
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44. Barros, L., Barreto, M., **Pereira, L.** (2020) "Understanding the challenges behind Electric Vehicle usage by drivers - a case study in the Madeira Autonomous Region" in *Proceedings of the International Conference of ICT for Sustainability 2020, ICT4S '20*
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55. Quintal, F., **Pereira, L.**, Nunes, N., Nisi, V. (2015) “What-a-Watt: Exploring Electricity Production Literacy Through a Long Term Eco-Feedback Study”, In *Proceedings of the Fourth IFIP Conference on Sustainable Internet and ICT for Sustainability, SustainIT '15*, [short paper]
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61. **Pereira, L.** and Nunes, N.J. (2012) “Low Cost Framework for Non-Intrusive Energy Monitoring and Research” In *Proceedings of the International Conference on Smart Grids and Green IT Systems, SmartGreens '12* [short paper]
62. Nunes, N.J., **Pereira, L.**, Quintal, F. and Bergés, M. (2011) “Deploying and Evaluating the Effectiveness of Energy Eco-feedback Through a Low Cost NILM Solution” In *Proceedings of the International Conference on Persuasive Technology, Persuasive '11*
63. Campos, P., Sousa, F., **Pereira, L.**, Perestrelo, C. and Freitas, D. (2007) “Cross-Media User Interfaces for Controlling the Enterprise - The EAGLE Integrated System” In *Proceedings of the International Conference on Enterprise Information Systems, ICEIS '07* [short paper]

#### **WORKSHOPS**

64. Jagadeesan Nair, V., **Pereira, L.** (2022) “Improving Accuracy and Convergence of Federated Learning Edge Computing Methods for Generalized DER Forecasting Applications in Power Grid”, In *NeurIPS 2022 Workshop: Tackling Climate Change with Machine Learning, TCCML' 22*

65. Beveridge, M, **Pereira, L. (2022)** "Interpretable Spatiotemporal Forecasting of Arctic Sea Ice Concentration at Seasonal Lead Times", In *NeurIPS 2022 Workshop:Tackling Climate Change with Machine Learning, TCCML' 22*
66. Manca, M., Faustine, A., **Pereira, L. (2022)** "Appliance Recognition with Combined Single- and Multi-label Approaches", In *Proceedings of the 6<sup>th</sup> International Workshop on Non-Intrusive Load Monitoring, NILM '22*
67. Gois, J., Klemenjak, C., **Pereira, L. (2020)** "On the Relationship between Seasons of the Year and Disaggregation Performance", In *Proceedings of the 5<sup>th</sup> International Workshop on Non-Intrusive Load Monitoring, NILM '20*
68. Faustine, A., **Pereira, L.**, Bousbiat, H., Kulkarni, S. (2020) "UNet-NILM: A Deep Neural Network for Multi-tasks Appliances State Detection and Power Estimation in NILM", In *Proceedings of the 5<sup>th</sup> International Workshop on Non-Intrusive Load Monitoring, NILM '20*
69. Hashmi, Md U., Deka, D., **Pereira, L.**, Bušić, A. (2020) "Energy Storage Optimization for Grid Reliability", In *e-Energy '20: Proceedings of the Eleventh ACM International Conference on Future Energy Systems, Energy Storage' 20*
70. **Pereira, L.**, Nunes, J.N. (2018) "Comparison of Performance Metrics for Event Detection Algorithms in NILM", In *Proceedings of the 4<sup>th</sup> International Workshop on Non-Intrusive Load Monitoring, NILM '19*
71. Nunes, N.J., **Pereira, L.** and Nisi, V. (2015) "Towards using Low-Cost Opportunistic Energy Sensing for Promoting Energy Conservation" In *Proceedings of the Fostering Smart Energy Applications Workshop, FSEA '15* [position paper]

#### **EXTENDED ABSTRACTS, POSTERS, AND DEMO ABSTRACTS**

72. Isaza-Giraldo, A., Bala, P., Campos, P., **Pereira, L. (2024)** "Prompt-Gaming: A Pilot Study on LLM-Evaluating Agent in a Meaningful Energy Game", *Extended Abstracts of the 2019 CHI Conference on Human Factors in Computing Systems, CHI 2019* [extended abstract]
73. Velosa, N., **Pereira, L. (2021)** "Towards Pro-Social Load Balancing in Energy Communities", in *Proceedings of the 6<sup>th</sup> ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation, BuildSys '21* [poster]
74. **Pereira, L.**, Aguiar, V., Vasconcelos, F. (2019) "Future Industrial Kitchen: Challenges and Opportunities", in *Proceedings of the 6<sup>th</sup> ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation, BuildSys '19* [abstract paper]
75. Vasconcelos, F., Aguiar, V., **Pereira, L. (2019)** "Ultrasonic Waste Monitoring in the Future Industrial Kitchen", in *Proceedings of the 17<sup>th</sup> ACM Conference on Embedded Networked Sensor Systems, SenSys '19* [poster]
76. **Pereira, L. (2019)** "A Mouse (H)Over a Hotspot Survey: An Exploration of Patterns of Hesitation through Cursor Movement Metrics", *Extended Abstracts of the 2019 CHI Conference on Human Factors in Computing Systems, CHI 2019* [extended abstract]
77. Quintal, F., Scuri, S., Barreto, S., **Pereira, L.**, Vasconcelos, D., Pestana, D. (2019) "", *Extended Abstracts of the 2019 CHI Conference on Human Factors in Computing Systems, CHI 2019* [extended abstract]
78. Barros, L., **Pereira, L.**, and Pyakurel, P. (2018) "On the Challenges of Charging Electric Vehicles in Domestic Environments", *Proceedings of the 9<sup>th</sup> International Conference on Future Energy Systems, e-Energy '18* [poster]
79. **Pereira, L.**, Chisik, Y. (2017) "A Mouse over a Hotspot Survey: An exploration of perceptions of electricity consumption and patterns of indecision", in *Proceedings of the Fifth IFIP International Conference on Sustainable Internet and ICT for Sustainability, SustainIT '17*, [work-in-progress]

80. **Pereira, L. (2017)** “EMD-DF: A Data Model and File Format for Energy Disaggregation Datasets”, In *Proceedings of the ACM International Conference on Systems for Energy-Efficient Built Environments, BuildSys '17* [poster]
81. Ribeiro, M., **Pereira, L.**, Quintal, F, and Nunes, N.J. (2016) “SustDataED:A Public Dataset for Electric Energy Disaggregation Research”, In *Proceedings of ICT for Sustainability 2016, ICT4S '16* [poster]
82. **Pereira, L.** and Nunes, N.J. (2015) “Towards Systematic Performance Evaluation of Non-Intrusive Load Monitoring Algorithms and Systems” In *Proceedings of the Fourth IFIP Conference on Sustainable Internet and ICT for Sustainability, SustainIT '15* [doctoral consortium]
83. **Pereira, L.** and Nunes, N.J. (2015) “Semi-automatic labeling for Non-Intrusive Load Monitoring Datasets” In *Proceedings of the Fourth IFIP Conference on Sustainable Internet and ICT for Sustainability, SustainIT '15* [poster]
84. Quintal, F, **Pereira, L.**, Jorge, C. and Nunes, N.J. (2015) “EnerSpectrum: Exposing the source of energy through plug-level eco-feedback” In *Proceedings of the Fourth IFIP Conference on Sustainable Internet and ICT for Sustainability, SustainIT '15* [poster]
85. **Pereira, L.**, Nunes, N. and Bergés, M. (2014) “SURF and SURF-PI:A File Format and API for Non-Intrusive Load Monitoring Public Datasets” In *Proceedings of the 5th International Conference on Future Energy Systems, e-Energy '14* [poster]
86. Quintal, F, **Pereira, L.**, Nunes, N. and Nivi, V. (2014) “What a watt: Where does my electricity comes from?”, In *Adjunct Proceedings of the International Working Conference on Advanced Visual Interfaces, AVI '14* [demo]
87. **Pereira, L. (2013)** “Towards Automating the Performance Evaluation of Non-Intrusive Load Monitoring Systems” In *Proceedings of the International Conference on ICT for Sustainability, ICT4S '13* [doctoral consortium]
88. Quintal, F, Nisi, V., Nunes, N.J., Barreto, M. and **Pereira, L. (2012)** “HomeTree - An Art Inspired Mobile Eco-feedback Visualization” In *Proceedings of the International Conference on Advances In Computer Entertainment Technology, ACE '12* [demo]
89. Gouveia, L., **Pereira, L.**, Scott, M. and Oakley, I. (2012) “Eco-Avatars: Visualizing Disaggregate Home Energy Usage” In *ACM Conference of Designing Interactive Systems, DIS '12* [demo]
90. Quintal, F, **Pereira, L.** and Nunes, N.J. (2012) “A Long-term Study of Energy Eco-feedback Using Non-Intrusive Load Monitoring” In *Proceedings of the International Conference on Persuasive Technology, Persuasive '12* [poster]

#### BOOKS

91. Reinhardt, A., **Pereira, L. (2021)** “Energy Data Analytics for Smart Meter Data”, MDPI Books, ISBN (PDF): 978-3-0365-2017-9, doi: 10.3390/books978-3-0365-2017-9

#### SELECTED TALKS

1. “Electricity-Water Nexus Analysis in Industrial Kitchen Appliance Water Consumption” (2023), SmaCuMed International Conference on Water-Energy-Food-Ecosystem Nexus in the Mediterranean (WEFE2023)
2. “SMILE -Smart Island Energy Systems” (2021), Island Energy Transition Experience in H2020 Projects - Chapter I DSM, Flexibility and Energy Management, Online
3. “Energy Monitoring, Storage Control and AI in the Wild: Experiences from a real-world demonstrator” (2020), CeADAR: Ireland national centre for Applied AI and Data Analytics, Online
4. “Furthering Energy and Environment Research at ITIILARSyS” (2019), University of Klagenfurt, Klagenfurt, Austria

5. “SoCoL: Semi-automatic Collaborative Labelling for NILM datasets” (2018), European Non-Intrusive Load Monitoring Workshop, Duisburg, Germany

## ACADEMIC VISITS

1. Visiting researcher at the University of Cagliari, Cagliari, Italy (April 2022)
2. École Normale Supérieure – PSL Université Paris, (December 2019)
3. Visiting researcher at the University of Klagenfurt, Klagenfurt, Austria (September 2019)

## ACADEMIC SERVICE

### MANAGEMENT OF SCIENCE AND TECHNOLOGY

1. Member of the ITI/LARSyS Scientific Committee, 2020 - 2024

### PARTICIPATION AS A MEMBER OF COMPETITIVE ADMISSIONS

1. Agencia Nacional de Investigación y Desarrollo (Chile), Fondecity Regular, 2023
2. Dutch Research Council (NWO) Talent Programme, 2021

## MEMBERSHIPS AND AFFILIATIONS

### MEMBERSHIPS

|   |                  |
|---|------------------|
| Ordem dos Engenheiros de Portugal (Portuguese Order of Engineers) | [2011 - present] |
| IEEE  | [2011 - present] |
| ACM   | [2017 - present] |